

CLAIMS

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1. Conduit (1) for conveying and heating a flow of gas, comprising in its interior at least an electric heating element, **characterized in that** said at least a heating element:

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- is formed by a thick-film layer (2),
- works as a positive temperature coefficient (PTC) element,
- is arranged within said conduit (1), and
- delimits said flow of gas at least on one side.

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2. Conduit according to claim 1, **characterized in that** said thick-film heating element (2) is substantially arranged close to and along at least a portion of inner wall (5) of said conduit.

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3. Conduit according to claim 1 or 2, **characterized in that** between said thick-film PTC heating element (2) and the corresponding inner-wall portion (5) there is interposed a layer of insulating material (4).

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4. Conduit according to the preamble of claim 1, **characterized in that** said heating element:

- is formed by a thick-film layer (2),
- works as a positive temperature coefficient (PTC) element,
- forms an integral part (7) of a portion of wall of said conduit, in such a manner that it is substantially oriented in a parallel manner

to the flow direction of said gas, so that the latter is not even partially obstructed by such a thick-film layer.

5. Conduit according to any of the preceding claims,
5 **characterized in that:**

- said thick-film PTC heating element is subdivided into a plurality of individual and distinct heating elements (R1, R2, R3) featuring at least partly a PTC working mode,

10 - each one of said distinct heating elements is energized independently (parallel-connected heating elements),

- each one of said distinct heating elements is connected individually in series with a respective switch means (N1, N2, N3),

- the operation of said switch means is driven by command signals issued by a driving and control unit (M),

15 - said driving and control unit processes and outputs said command signals as a pre-established function of signals received from a control means (M2) provided to control the general operation of the apparatus in which said conduit is included.

20 6. Conduit according to any of the preceding claims 1 to 4,
characterized in that:

- said thick-film PTC heating element is subdivided into a plurality of individual and distinct heating elements (R1, R2, R3),

25 - each one of said distinct heating elements is energized independently (parallel-connected heating elements),

- each one of said distinct heating elements is connected individually in series with a respective switch means (N1, N2, N3),

- the operation of said switch means is driven by command signals issued by a driving and control unit (M),

30 - said driving and control unit processes and outputs said command signals as a function of an external temperature detected by a respective appropriate sensor (S).

7. Conduit according to claim 6, **characterized in that** said temperature sensor (S) is adapted to measure the temperature of the gas flowing through said conduit (1), or the temperature of the surfaces of said conduit, at a pre-established position.

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8. Clothes drying machine comprising a conduit (1) for circulating a flow of forced and heated-up air and for blowing said flow of air into the drum holding the clothes to be dried, **characterized in that** said conduit is provided and made according to any of the preceding claims or combination thereof.

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